

Fig. 4.—Early stage in the development of the larva before the appearance of the larval appendages. *a*, outer larval membrane; *b*, inner larval membrane; *c*, blastoderm with indications of segments; *d*, yolk; *e*, rudiment of dorsal organ.

Fig. 5.—Later stage. *a*, outer membrane; *b*, inner membrane; *c*, yolk; *d*, dorsal organ; *e*, larval appendage; *f*, eye; *g*, and *h*, antennæ; *i*, pereopoda; *k*, pleopoda; *l*, telson.

NOTE ON THE YOUNG OF THE SAW-FISH SHARK
(*PRISTIOPHORUS CIRRATUS*).

BY WILLIAM A. HASWELL, M.A., B.Sc.

About 18 months ago female specimens of *Pristiophorus* with young, were obtained with the trawl off Port Jackson. The young were fully formed, resembling the parent in everything except size, so that this peculiar genus of Sharks, like many others is viviparous. More recently I obtained from specimens received by the Australian Museum from the Fisheries Commissioners a series of fœtuses which exhibited a very much earlier stage of the development, the yolk-sac being still very large and the external gills being still conspicuous. In this stage the fœtuses (1) which were from seven to nine in number in each female, are particularly interesting from their possessing a rudimentary shell, which, though for the most part extremely delicate, presents at one point a spiral rudiment proving unmistakably its true nature. In one case this rudimentary shell was found detached and lying free in the cavity of the uterus. In the advanced stage first examined it had entirely disappeared. A similar rudimentary shell has been shewn to exist in several other viviparous genera, *Mustelus*, *Sphyrna* and others (1), but nothing has hitherto been known of the development of this peculiar Australian genus. On comparing the weights of the early stage plus the yolk sac, with the later stage, I found, as was to be expected from their relative size, that the latter was considerably

(1) See Balfour's Embryology, Vol. II.

heavier than the former. Nutrient matter must, therefore, be supplied to the fœtus from the uterine wall, and, as there is no placental connection, this must take the form of secretion from the walls of the uterus, which contains close-set, long, vascular villi, of a nutrient fluid, and its reception by endosmosis into the yolk-sac.

NOTES AND EXHIBITS.

Mr. Haswell exhibited specimens of intra-uterine fœtuses of a wallaby received through the *Town and Country Journal*, from a correspondent in the interior. The fœtuses were well-advanced, nearly as large as mammary fœtuses, and the chorion extended over the whole surface, but there was still no trace of concrecence with the wall of the uterus.

The Hon. J. Norton, M.L.C., exhibited a portion of Hawkesbury Sandstone, from Springwood, Blue Mountains, which had been perforated in all directions and to a considerable depth by some hymenopterous insect. Such perforations are common enough, but it is believed that the particular bee which forms them has not yet been determined.

Mrs. Masters exhibited an egg of the *Paradisea raggiana* from New Guinea. Very few of them have ever been seen.

Mr. J. J. Fletcher, M.A., B.Sc., exhibited several specimens of a Giant Earthworm from Burrawang, N. S. Wales, which is closely allied to the *Megascolides australis* from Gippsland, Victoria, described by Professor McCoy, in 1878. Mr. Fletcher stated his intention of giving a further account of this worm at a future meeting.

Mr. Ratte exhibited fossils of the genera *Rostellaria*, *Fusus*, *Pleurotomaria*? *Belemnites*, *Venus*, *Nautilus*, from the interior of New Caledonia, together with a fragment of bone. He observed that these fossils were characteristic of the upper cretaceous formation, and were likely to identify these New Caledonian beds with some already known in New Zealand. He also exhibited an *Inoceramus* from the Neocomian of Noumea.